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ZOOLOGY

Oogenesis in Insects.—It is a much debated question whether the sex or germ cells are set apart at the outset of embryonic development or arise later by modification of certain of the somatic or body cells. The continuation of Marshall's studies on the anatomy and embryology of the wasp *Polistes pallipes*¹ treats of the early history of the cellular elements of the ovary. The author finds that in the embryos and very early larvæ, each undifferentiated ovary is a syncytium with a number of nuclei similar in structure. In the course of development oocytes, primitive nurse-cells, and follicular epithelial cells are developed from the undifferentiated cells of the distal end of the egg tube. In a similar study of a Phryganid² he found that the first differentiation had taken place in a fairly old larva. At this stage the cells may be either "1st, undifferentiated or, 2d, passing through the first stages in the development which is to result in the further differentiation of oocytes or nurse-cells. Cells of the first group may either remain unchanged and become the epithelial cells or they may pass through the same stages as those of group two." Thus Marshall believes that the sex cells arise late and have a common origin with certain other cells in the ovary.

These results agree essentially with those of the earlier workers, notably Korschelt, '86, on the history of the germ cells of insects, but are in sharp contrast to the results of Heymons '95, Lecaillon '00-01, and many other recent workers who contend that the germ cells are in origin perfectly distinct from the follicular epithelium.

W. A. RILEY.

Parthenogenesis of *Bacillus rossii*.—The theory that each body cell contained both male and female constituents, and that the egg cell in becoming mature gave off its male elements in the second polar body has also been much discussed. This idea was supported by finding that the second polar body was not given off from certain eggs which

¹ Marshall, Wm. S. '07. Contributions towards the embryology and anatomy of *Polistes pallipes*. II. The early history of the cellular elements of the ovary. Zeitschr. wiss. Zool. lxxxv; pp. 173-213, pls. 12-14.

² The early history of the cellular elements of the ovary of a Phryganid, *Platyphylax designatus* Walk. l. c. pp. 214-237, pls. 15-16.

developed parthenogenetically. According to Baehr,¹ the walking stick *Bacillus rossii* must be added to the list of parthenogenetic species in the development of which the second polar body is formed, and the first divides in two. There is no evidence of their functioning further for they apparently degenerate and disappear.

Contrary to a generally accepted belief that parthenogenesis in this species quickly leads to degeneration, the author reared perfectly healthy females from at least the ninth parthenogenetic generation. Apparently only females are produced,—it is a case of normal thelytoky.

W. A. R.

Phagocytosis.—By means of a clever technique Mercier² has been able to throw new light upon the much debated question as to the nature of the phagocytes in the batrachians and the insects. On injecting sterilized, powdered carmine before the beginning of metamorphosis he found that it was taken up by the leucocytes and that leucocytes thus marked were yet capable of phagocytosis. Through this method he was able to demonstrate beyond a doubt the active participation of the leucocytes in the degeneration of the muscle fibers. In the case of the batrachians the muscles exhibited signs of degeneration at the time that the leucocytes entered but in the case of the fly *Calliphora* such signs were not to be detected microscopically. The fiber becomes broken up into sarcolytes which are engulfed by the phagocytes. There is no such phenomenon as the formation of myoclasts and consequent autophagocytosis. The author was able to demonstrate with equal clearness the active participation of the leucocytes in the destruction of the fat body of *Calliphora* and to distinguish them from the so-called “pseudonuclei” of Berlese.

W. A. R.

Histolysis in Queen Ants.—Janet³ has studied in queen ants, the degeneration of the wing muscles, which begins very soon after the

¹ Baehr, W. B. v. '07. Über die Zahl der Richtungskörper in parthenogenetisch sich entwickelnden Eiern von *Bacillus rossii*. Zool. Jahrb. Anat. xxiv pp. 174–192. Pl. 16.

² Mercier, L. '06. Les processus phagocytaires pendant la metamorphose des batraciens anoures et des insectes. Arch. Zool. exp. et gen., 4e ser., t. v. pp. 1–151, pls. 1–4.

³ Janet, Ch. Histolyse, sans phagocytose, des muscles vibrateurs du vol, chez les reines des Fourmis. C. R. Acad. Sci. Paris. cxliv, 1907, pp. 393–196.